Listing of the claims:

1-37 (Cancelled)

38. (Previously Presented) A method for modifying a condition of a material, comprising:

obtaining a plurality of sensor readings associated with a plurality of longitudinal zones along a length of the material as the material moves;

acquiring travel length information associated with the material as the material moves;

determining a difference between a first wave height of the material in a first one of the longitudinal zones and a second wave height of the material in a second one of the longitudinal zones based on at least some of the plurality of sensor readings; and

adjusting a load applied to the material as the material moves based on the travel length information and the difference between the first and second wave heights to modify the condition of the material toward a desired condition.

39. (Previously Presented) A method as defined in claim 38, wherein acquiring the travel length information includes measuring the travel length of the material as the material moves.

40. (Cancelled)

41. (Previously Presented) A method as defined in claim 38, further comprising generating topographical information associated with a surface of the material based on the travel length information and the plurality of sensor readings.

42. (Previously Presented) A method as defined in claim 38, further comprising determining a certification level of the material based on the plurality of sensor readings.

43. (Previously Presented) A method as defined in claim 38, wherein the plurality of sensor readings are generated by at least one of a contact sensor or a non-contact sensor.

44. (Previously Presented) A method as defined in claim 38, wherein adjusting the load applied to the material includes adjusting a position of a workroll to vary the load applied to the material.

45. (Previously Presented) A method as defined in claim 38, wherein the material is a strip material.

46. (Previously Presented) A system for modifying the flatness properties of a continuously moving material, the system comprising:

a processor system; and

a memory communicatively coupled to the processor system, the memory including stored instructions that enable the processor system to:

obtain a plurality of sensor readings associated with a plurality of longitudinal zones along a length of the material as the material moves;

acquire travel length information associated with the material as the material moves;

determine a difference between a first wave height of the material in a first one of the longitudinal zones and a second wave height of the material in a second one of the longitudinal zones based on at least some of the plurality of sensor readings; and

adjust a load applied to the material as the material moves based on the travel length information and the difference between the first and second wave heights to modify the condition of the material toward a desired condition.

47. (Previously Presented) A system as defined in claim 46, wherein the stored instructions enable the processor system to acquire the travel length information by measuring the travel length of the material as the material moves.

48. (Cancelled)

49. (Previously Presented) A system as defined in claim 46, wherein the stored instructions enable the processor system to generate topographical information associated with a surface of the material based on the travel length information and the plurality of sensor readings.

50. (Previously Presented) A system as defined in claim 46, wherein the stored instructions enable the processor system to determine a certification level of the material based on the plurality of sensor readings.

51. (Previously Presented) A system as defined in claim 46, wherein the plurality of sensor readings are generated by at least one of a contact sensor or a non-contact sensor.

52. (Previously Presented) A system as defined in claim 46, wherein the stored instructions enable the processor system to adjust a position of a workroll to vary the load applied to the material.

53. (Previously Presented) A system as defined in claim 46, wherein the material is a strip material.

54. (Previously Presented) A machine accessible medium having instructions stored thereon that, when executed, cause a machine to:

obtain a plurality of sensor readings associated with a plurality of longitudinal zones along a length of the material as the material moves;

acquire travel length information associated with the material as the material moves;

determine a difference between a first wave height of the material in a first one of the longitudinal zones and a second wave height of the material in a second one of the longitudinal zones based on at least some of the plurality of sensor readings; and

adjust a load applied to the material as the material moves based on the travel length information and the difference between the first and second wave heights to modify the condition of the material toward a desired condition.

55. (Previously Presented) A machine accessible medium as defined in claim 54 having instructions stored thereon that, when executed, cause the machine to acquire travel length information by measuring the travel length of the material as the material moves.

56. (Cancelled)

57. (Previously Presented) A machine accessible medium as defined in claim 54 having instructions stored thereon that, when executed, cause the machine to generate topographical information associated with a surface of the material based on the travel length information and the plurality of sensor readings.

58. (Previously Presented) A machine accessible medium as defined in claim 54 having instructions stored thereon that, when executed, cause the machine to determine a certification level of the material based on the plurality of sensor readings.

59. (Previously Presented) A machine accessible medium as defined in claim 54 having instructions stored thereon that, when executed, cause the machine to obtain the plurality of sensor readings from at least one of a contact sensor and a non-contact sensor.

60. (Previously Presented) A machine accessible medium as defined in claim 54 having instructions stored thereon that, when executed, cause the machine to adjust a position of a workroll to vary the load applied to the material.

Claims 61-71 (Cancelled)

72. (Currently Amended) A system for conditioning a moving material, the system comprising:

a first sensor corresponding to a first longitudinal zone of the moving material and separated by a first distance from a surface of the moving material;

a second sensor corresponding to a second longitudinal zone of the moving material and separated by a second distance from the surface of the moving material;

a controller communicatively coupled to the first and second sensors and configured to compare the first distance to the second distance; and

a roller operatively coupled to the controller, wherein the controller varies a position of the roller based on the comparison to vary a load applied to the moving material to condition the moving material.

73. (Previously Presented) A system as defined in claim 72, further comprising an encoder communicatively coupled to the controller and configured to measure a travel length value associated with the moving material.

74. (Previously Presented) A system as defined in claim 72, wherein the first sensor is one of a contact sensor or a non-contact sensor.

75. (Previously Presented) A system as defined in claim 72, wherein the moving material is a strip material.

76. (Previously Presented) A system as defined in claim 72, wherein the load is associated with at least one of a threshold distance value and an average distance value generated based on at least one of the first distance or the second distance.

77. (Previously Presented) A method of leveling strip material, the method comprising:

moving the strip material past a first sensor associated with a first longitudinal zone along a length of the strip material and a second sensor associated with a second longitudinal zone along the length of the strip material;

obtaining a first plurality of readings from the first sensor;

obtaining a second plurality of readings from the second sensor;

determining a first wave height value based on at least one of the first plurality of readings and a second wave height value based on at least one of the second plurality of readings; and

generating an electrical signal to cause an adjustment of a load applied to the strip material in response to comparing the first and second wave height values.

78. (Previously Presented) A method as defined in claim 77, wherein comparing the first and second wave height values includes:

determining a first average for the first plurality of readings;

determining a second average for the second plurality of readings; and

determining a difference between the first average and the second average.

79. (Previously Presented) A method as defined in claim 77, wherein moving the strip material past the first sensor and the second sensor comprises moving the strip material past at least one non-contact sensor.

80. (Previously Presented) A method as defined in claim 77, wherein moving the strip material past the first sensor and the second sensor comprises moving the strip material past at least one of an acoustic sensor, an optical sensor, or a riding needle sensor.

81. (Previously Presented) A method as defined in claim 77, further comprising determining a length associated with the strip material based on an input from an encoder.

82. (Previously Presented) A method as defined in claim 77, wherein causing the adjustment of the load comprises causing a change in a workroll plunge.

83. (Previously Presented) A method as defined in claim 82, wherein causing the change in the workroll plunge comprises adjusting a hydraulic cylinder operatively coupled to a backup bearing.

84. (Previously Presented) A method as defined in claim 77, wherein causing the adjustment of the load comprises causing a change in a workroll center distance.

Claims 85-91 (Cancelled)

92. (Currently Amended) An apparatus to condition a material, comprising:

a roller configured to condition the material;

a first sensor corresponding to a first longitudinal zone of the material and positioned to measure a first height value of a surface of the material;

a second sensor corresponding to a second longitudinal zone of the material and positioned to measure a second height value of the surface of the material; and

a controller operatively coupled to the roller and the first and second sensors, wherein the controller is configured to generate an electrical signal in response to a comparison of the first height value and the second height value to condition the material.

93. (Previously Presented) An apparatus as defined in claim 92, further comprising a hydraulic cylinder operatively coupled to the controller and configured to adjust the roller in response to the electrical signal.

94. (Previously Presented) An apparatus as defined in claim 93, further comprising a backup bearing operatively coupled to the hydraulic cylinder and the roller, wherein the backup bearing causes a change in a plunge associated with the roller.

95. (Previously Presented) An apparatus as defined in claim 92, wherein the first sensor comprises an acoustic sensor.

96. (Previously Presented) An apparatus as defined in claim 92, wherein the first sensor comprises an optical sensor.

97. (Previously Presented) An apparatus as defined in claim 92, further comprising an encoder operatively coupled to the controller, wherein the controller is configured to use the encoder to determine a distance between a first height measuring location and a second height measuring location.

98. (Previously Presented) An apparatus as defined in claim 92, wherein the controller is configured to cause the generation of certification information associated with the material.

99. (Previously Presented) An apparatus as defined in claim 98, further comprising a printer operatively coupled to the controller to print at least some of the certification information.

100. (Previously Presented) An apparatus as defined in claim 98, further comprising a display device operatively coupled to the controller to display at least some of the certification information.

101. (Currently Amended) A method of modifying a condition of a material, comprising:

obtaining a first deviation value ~~associated with a material condition of~~ of a first wave height value associated with a first longitudinal zone of the material as the material moves;

obtaining a second deviation value ~~associated with the material condition of~~ of a second wave height value associated with a second longitudinal zone of the material as the material moves; and

adjusting a load applied to the first longitudinal zone of the material based on a comparison of the first and second deviation values.

102. (Previously Presented) A method as defined in claim 101, wherein the first deviation value is obtained by determining a first average deviation based on a first plurality of sensor readings associated with the first zone of the material, and wherein the second deviation value is obtained by determining a second average deviation based on a second plurality of sensor readings associated with the second zone of the material.

103. (Previously Presented) A method as defined in claim 101, wherein adjusting the load applied to the first zone of the material comprises determining that the first zone of the material is not flatter than the second zone of the material based on the comparison of the first and second deviation values.

104. (Previously Presented) A method as defined in claim 101, wherein the first deviation value is represented using a first I-unit value and the second deviation value is represented using a second I-unit value.

105. (Previously Presented) A method as defined in claim 104, wherein the first I-unit value is determined based on a peak value and a span value associated with the first zone.

106. (Previously Presented) A method as defined in claim 105, wherein the peak value is calculated by multiplying a first zone average value by two and subtracting the known thickness of the material from the result of the multiplication.

107. (Previously Presented) A method as defined in claim 105, wherein the span value is calculated by dividing a length of the first zone by a number of peaks in the first zone.

108. (Previously Presented) A method as defined in claim 101, wherein adjusting the load applied to the first zone comprises adjusting the load applied to the first zone and a third zone based on the comparison of the first and second deviation values.

109. (Previously Presented) A method of modifying a condition of a material, comprising:

obtaining a first plurality of sensor readings associated with a first zone of the material as the material moves;

obtaining a second plurality of sensor readings associated with a second zone of the material as the material moves;

determining a first height value based on the first plurality of sensor readings;

determining a second height value based on the second plurality of sensor readings; and

adjusting a load applied to the material in the second zone to condition the material in the first zone as the material moves based on a comparison of the first and second height values.

110. (Previously Presented) A method as defined in claim 109, wherein each of the first and second height values is selected from the group consisting of an average deviation value, a maximum deviation value, an I-unit, and a square root of a sum of squares of deviation values.

111. (Previously Presented) A method as defined in claim 109, further comprising acquiring a travel length value associated with the material as the material moves and adjusting the load applied to the second zone of the material based on the travel length value.

112. (Previously Presented) A method as defined in claim 109, further comprising comparing the first and second height values to a predetermined threshold value associated with a substantially flat condition and adjusting the load applied to the second zone of the material based on the comparison of the first and second height values to the predetermined threshold value.

113. (Previously Presented) A method of modifying a condition of a material, comprising:

determining a peak value based on an average deviation value associated with a first zone of the material as the material moves;

dividing the peak value by a length of the first zone to determine a quotient value;

determining a first I-unit value indicative of the condition of the material based on the quotient value;

comparing the first I-unit value to an I-unit threshold value associated with a desired condition of the material; and

adjusting a load applied to a second zone of the material as the material moves based on the comparison of the first I-unit value to the I-unit threshold value.

114. (Previously Presented) A method as defined in claim 113, further comprising determining a certification level of the material based on the first I-unit value.

115. (Previously Presented) A method as defined in claim 113, further comprising adjusting a third zone of the material as the material moves based on the comparison of the first I-unit value to the I-unit threshold value.

116. (Previously Presented) A method as defined in claim 113, further comprising:

determining a third I-unit value associated with a third zone of the material and a fourth I-unit value associated with a fourth zone of the material as the material moves;

comparing the third I-unit value to the fourth I-unit value; and

adjusting another load applied to the third zone of the material as the material moves based on the comparison of the third and fourth I-unit values.

117. (Previously Presented) A method as defined in claim 116, wherein the load applied to the other zone of the material is adjusted based on a surface deviation value.

118. (New) An apparatus to condition a material, comprising:

a workroll having a plurality of workroll zones spaced along a length of the workroll, wherein the length of the workroll is configured to traverse a width of the material, and wherein the workroll is configured to engage a surface of the material;

a first backup bearing configured to engage the workroll at a first workroll zone;

a second backup bearing configured to engage the workroll at a second workroll zone, wherein a first plunge of the first backup bearing is controllable independent of a second plunge of the second backup bearing;

a first sensor configured to obtain a first measurement value corresponding to a first wave height value associated with a first longitudinal zone of the surface of the material;

a second sensor configured to obtain a second measurement value corresponding to a second wave height value associated with a second longitudinal zone of the surface of the material; and

a controller configured to compare the first wave height value to the second wave height value and vary the first plunge of the first backup bearing by a first amount and the second plunge of the second backup bearing by a second amount based on the comparison to condition the material along the first longitudinal zone differently from the material along the second longitudinal zone.

119. (New) An apparatus as defined in claim 118, wherein the controller is further configured to determine the first wave height value by averaging the first measurement value with a third measurement value obtained by the first sensor and to determine the second wave height value by averaging the second measurement value with a fourth measurement value obtained by the second sensor.

120. (New) An apparatus as defined in claim 118, wherein the controller is further configured to determine that the first longitudinal zone of the material is substantially flatter than the second longitudinal zone of the material based on the comparison of the first and second wave height values and to vary the first plunge of the first backup bearing by the first amount and the second plunge of the second backup bearing by the second amount based on the determination that the first longitudinal zone of the material is substantially flatter than the second longitudinal zone of the material.

121. (New) An apparatus as defined in claim 118, wherein the first backup bearing corresponds to the first longitudinal zone of the material and the second backup bearing corresponds to the second longitudinal zone of the material.

122. (New) An apparatus as defined in claim 118, wherein the controller is configured to vary the first plunge of the first backup bearing by the first amount and the second plunge of the second backup bearing by the second amount to increase a first force applied to the first longitudinal zone of the material and to increase a second force applied to the second longitudinal zone of the material, wherein the first force is different from the second force.

123. (New) An apparatus as defined in claim 118, wherein the controller is further configured to determine the first amount corresponding to the first plunge of the first backup bearing by comparing the first wave height value to a threshold value and determining the first amount based on the comparison.

124. (New) An apparatus as defined in claim 123, wherein the first wave height value is an average deviation value, and wherein the controller is further configured to determine the average deviation value by averaging the first measurement value with a third measurement value obtained by the first sensor.

125. (New) An apparatus as defined in claim 123, wherein the controller is further configured to select the first amount to vary the first plunge when the first wave height value is less than the threshold value and to select a third amount to vary the first plunge when the first wave height value is greater than the threshold value.

126. (New) An apparatus to condition a material, comprising:

a sensor configured to obtain a first measurement value corresponding to a first zone of the material as the material moves; and

a controller configured to:

determine an average deviation value associated with the first zone of the material based on the first measurement value,

determine a peak value based on the average deviation value associated with a first zone,

divide the peak value by a length of the first zone to determine a quotient value,

determine a second value indicative of the condition of the material based on the quotient value,

compare the second value to a threshold value associated with a desired condition of the material, and

generate an electrical signal to adjust a load applied to a second zone of the material as the material moves based on the comparison of the second value to the threshold value.

127. (New) An apparatus as defined in claim 126, wherein the controller is further configured to communicate the electrical signal to a material conditioner having a roll configured to engage the material, wherein the electrical signal is configured to cause the material conditioner to adjust the load applied to the second zone of the material as the material moves by adjusting a plunge of the roll.

128. (New) An apparatus as defined in claim 127, wherein the roll includes a plurality of roll zones spaced along a length of the roll, and wherein the material conditioner further includes a first backup bearing configured to engage the roll at a first roll zone and a second backup bearing configured to engage the roll at a second roll zone, and wherein the controller is configured to cause the material conditioner to adjust the plunge of the roll by adjusting the first backup bearing independent of the second backup bearing based on the electrical signal.

129. (New) An apparatus as defined in claim 126, wherein the second value is an I-unit value.

130. (New) An apparatus as defined in claim 126, wherein the controller is further configured to determine a certification level of the material based on the second value.

131. (New) An apparatus as defined in claim 126, wherein the first zone is a first longitudinal zone of the material, wherein the apparatus further comprises a second sensor configured to obtain a second measurement value corresponding to a second longitudinal zone of the material as the material moves, and wherein the controller is further configured to:

determine a second average deviation value associated with the second longitudinal zone of the material based on the second measurement value;

determine a third value indicative of the condition of the material along the second longitudinal zone; and

generate the electrical signal to adjust the load applied to the second zone based on a comparison of the second value and the third value and the comparison of the second value to the threshold value.